AMENDMENT OF SOLICITATION / MODIFICATION OF CONTRACT

1. Contract ID Code	PAGE
	1 OF 2

2.Amendment/Modification No.	3. EFFECTIVE DATE	4. REQUISITION / PURCHASE REQUEST	5. Project No. (if applicable)
0005	24 JUNE 02	N66001-2030-62101	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than Item 6)	CODE
CONTRACTING OFFICER, SPAWARSYSCEN BLDG A33 ROOM 1602W, Code 2212 53560 HULL STREET SAN DIEGO, CA 92152-5000 JACK FAULKNER (619)553-4503 email: jfaulk@spawar.navy.mil	N66001		N66001

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, state and ZIP + 4 Code)	(X)	9a. Amendment of Solicitation No.
		N66001-02-R-5999
	X	9b. Dated *(See Item 11)*
		22 MAR 02
		10a. Modification of Contract / Order No.
		/
		10b. Dated *(See Item 11)*
CAGE CODE / CEC (facility) CODE		

11. THIS ITEM APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [ ] is extended [X] is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation data, etc..)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor [ ] Is Not, [ ] Is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

SEE ATTACHED.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME OF CONTRACTING OFFICER *(Type or print)*	
		SHARON M. PRITCHARD	
15B. NAME OF CONTRACTOR BY _____ *(Signature of person authorized to sign)*	15C. Date Signed	16B. UNITED STATES OF AMERICA BY _____ *(Signature of Contracting Officer)*	16C. Date Signed

1) Solicitation Section B is revised to include estimated travel and material costs which are stated in Section L of the solicitation. The revised Section B is attached hereto.

2) Attachment 4 is replaced with the attached.

3) Reference is made to Amendment 0003 and Antenna Handover Units (AHUs). The AHU's are now available for temporary loan to offerors. Such temporary loan is contingent upon prior receipt by the Government from the prospective offeror of two SatunBm terminal INMARSAT Serial Numbers (ISNs) that will be used by the Government to acquire from Nera the opening key code required to operate the loaned AHU. Offerors are responsible for the pickup and return of the AHU, as well as any damage that may be incurred to the AHU during offeror handling and use.
Please contact BOTH points of contact listed in the below paragraph via email with the required ISN information and details for AHU pickup.

4) As stated in Amendment 0003, the Government does not anticipate extending the proposal due date. Questions in regard to the requirements specified in this RFP MUST be submitted in writing (VIA E-MAIL ONLY), NO LATER THAN 12:00 NOON PDT on Monday, 8 July 2002. Questions must be emailed to both Jack Faulkner: jfaulk@spawar.navy.mil and Sharon Pritchard: pritch@spawar.navy.mil. Questions will be accepted after 8 July 2002, but the Government does not guarantee that questions submitted after 8 July 2002 will be answered or, if answered, that the proposal due date will be extended as a result of questions received after 8 July 2002.

5) The attached questions and answers are for informational purposes only and are not changes to the solicitation.

6) All other solicitation provisions remain unchanged.

PART I
SECTION B
SUPPLIES OR SERVICES AND PRICES/COSTS

B-100 SCOPE

Section B - Contract Line Items (CLINs)

BASE PERIOD

The contractor shall provide the following on a **fixed price** basis:

CLIN	DESCRIPTION	MAXQTY	UNIT	UNIT PRICE	TOTAL AMT
0001	High Performance Modem & IAW SOW Related Interface Equipment	60	EA	_____	_____
0002	Equipment (operator/technical) Manual SOW para. 3.6.1	60	EA	NSP	NSP
0003	Standard Equipment Warranty 24 months after Govt. Accept.	60	EA	NSP	NSP
0004	30 month extension on the standard equipment warranty	20	EA	_____	_____
0005	High Performance Modem	10	EA	--------	--------
0006	Related Interface Equipment	10	EA	--------	--------
0007	90 Day Spares Kit IAW SOW para 3.4.1	18	EA	--------	--------
0008	One Year Spares Kit IAW SOW para 3.4.2	12	EA	--------	--------
0009	Factory Spares Kit IAW SOW para 3.4.3	6	EA	--------	--------
0010	Commercial Manual supplemental data IAW SOW para. 3.6.2	60	EA	------	--------
0011	Organizational Maintenance Training SOW para. 3.7.3	60	EA	--------	--------
0012	Maintenance Training CD IAW SOW para 3.7.3.1	1	EA	--------	--------

0013	Organizational Operator Training IAW SOW para 3.7.4	60	EA	--------	--------
0014	Operator Training CD IAW SOW para 3.7.4.1	1	EA	--------	--------
0015	Factory Operator/Maintenance Training IAW SOW para. 3.7.5	4	EA	--------	--------
0016	High Performance Modem & Related Interface Equipment Hook-up Support IAW SOW para. 3.8.1	60	EA	--------	--------
0017	Saturn-Bm Terminal/Antenna hand-over Non-Manufactures Warranty IAW Section H	60	EA	--------	--------

The contractor shall provide the following on a **Time & Materials** basis:

0018 LABOR: in accordance with SOW 3.10, REGULAR TIME:

Program Manager	40	M/H	--------	--------
Electronic Engineer	80	M/H	--------	--------
Electronic Technician	480	M/H	--------	--------
Design Engineer	40	M/H	--------	--------
Electronic Test Technician	80	M/H	--------	--------
Quality Assurance	40	M/H	--------	--------
Material Purchase Manager	20	M/H	--------	--------
Packing Specialist	40	M/H	--------	--------
Administrative Support	120	M/H	--------	--------
Draftsman	40	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0018 $_____

0019 LABOR: in accordance with SOW 3.10, OVERTIME:

Program Manager	10	M/H	--------	--------
Electronic Engineer	20	M/H	--------	--------
Electronic Technician	80	M/H	--------	--------
Design Engineer	10	M/H	--------	--------
Electronic Test Technician	20	M/H	--------	--------
Quality Assurance	10	M/H	--------	--------
Material Purchase Manager	04	M/H	--------	--------
Packing Specialist	04	M/H	--------	--------
Administrative Support	02	M/H	--------	--------
Draftsman	04	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0019 $_____

0020	Pre-planned Product Improvement IAW SOW 3.10.4		01	***UNPRICED***
0021	Materials		01 LOT	$20,000.00
0022	Travel/Per Diem/Handling		01 LOT	$60,000.00
0023	DATA FOR ITEM(S) IAW Contract Data Requirements List, (CDRL), Exhibit(s) "A"	1 LOT	NSP	NSP

TOTAL AMOUNT BASE YEAR $_____

OPTION CONTRACT LINE ITEM NUMBERS

The Government shall have the option to purchase the following CLINs in accordance with FAR 52.217-7 "Option for Increased Quantity-Separately Priced Line Item" on a **fixed-price** basis. The Government shall have the option to purchase the following CLINs in accordance with FAR 52.217-9 "Option to Extend the Term of the Contract" on a **Time and Materials** basis.

The Government shall have the option to purchase the following CLINs in accordance with FAR 52.217-9.

OPTION I

CLIN	DESCRIPTION	MAXQTY	UNIT	UNIT PRICE	TOTAL AMT
0024	High Performance Modem & IAW SOW Related Interface Equipment	60	EA	_____	_____
0025	Equipment (operator/technical) Manual SOW para. 3.6.1	60	EA	NSP	NSP
0026	Standard Equipment Warranty 24 months after Govt. Accept.	60	EA	NSP	NSP
0027	12 month extension on the standard equipment warranty	20	EA	_____	_____
0028	High Performance Modem	10	EA	--------	--------
0029	Related Interface Equipment	10	EA	--------	--------
0030	90 Day Spares Kit IAW SOW para 3.4.1	18	EA	--------	--------

0031	One Year Spares Kit IAW SOW para 3.4.2	12	EA	--------	--------
0032	Factory Spares Kit IAW SOW para 3.4.3	6	EA	--------	--------
0033	Commercial Manual supplemental data IAW SOW para. 3.6.2	60	EA	------	--------
0034	Organizational Maintenance Training SOW para. 3.7.3	60	EA	--------	--------
0035	Maintenance Training CD IAW SOW para 3.7.3.1	0	EA	--------	--------
0036	Organizational Operator Training IAW SOW para 3.7.4	60	EA	--------	--------
0037	Operator Training CD IAW SOW para 3.7.4.1	0	EA	--------	--------
0038	Factory Operator/Maintenance Training IAW SOW para. 3.7.5	4	EA	--------	--------
0039	High Performance Modem & Related Interface Equipment Hook-up Support IAW SOW para. 3.8.1	60	EA	--------	--------
0040	Saturn-Bm Terminal/Antenna hand-over Non-Manufactures Warranty IAW Section H	30	EA	--------	--------

The contractor shall provide the following on a **Time & Materials** basis:

0041 LABOR: in accordance with SOW 3.10, REGULAR TIME:

Program Manager	40	M/H	--------	--------
Electronic Engineer	80	M/H	--------	--------
Electronic Technician	480	M/H	--------	--------
Design Engineer	40	M/H	--------	--------
Electronic Test Technician	80	M/H	--------	--------
Quality Assurance	40	M/H	--------	--------
Material Purchase Manager	20	M/H	--------	--------
Packing Specialist	40	M/H	--------	--------
Administrative Support	120	M/H	--------	--------
Draftsman	40	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0041 $_____

0042 LABOR: in accordance with SOW 3.10, OVERTIME:

Program Manager	10	M/H	--------	--------
Electronic Engineer	20	M/H	--------	--------
Electronic Technician	80	M/H	--------	--------
Design Engineer	10	M/H	--------	--------
Electronic Test Technician	20	M/H	--------	--------
Quality Assurance	10	M/H	--------	--------
Material Purchase Manager	04	M/H	--------	--------
Packing Specialist	04	M/H	--------	--------
Administrative Support	02	M/H	--------	--------
Draftsman	04	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0042 $_____

0043	Pre-planned Product Improvement IAW SOW 3.10.4	30		***UNPRICED***
0044	Materials		01 LOT	$20,000.00
0045	Travel/Per Diem/Handling		01 LOT	$60,000.00
0046	DATA FOR ITEM(S) IAW Contract Data Requirements List, (CDRL), Exhibit(s) "A"	1 LOT NSP		NSP

TOTAL AMOUNT OPTION 1 $_____

OPTION II

CLIN	DESCRIPTION	MAXQTY	UNIT	UNIT PRICE	TOTAL AMT
0047	High Performance Modem & IAW SOW Related Interface Equipment	60	EA	_____	_____
0048	Equipment (operator/technical) Manual SOW para. 3.6.1	60	EA	NSP	NSP
0049	Standard Equipment Warranty 24 months after Govt. Accept.	60	EA	NSP	NSP
0050	12 month extension on the standard equipment warranty	20	EA	_____	_____
0051	High Performance Modem	10	EA	--------	--------
0052	Related Interface Equipment	10	EA	--------	--------
0053	90 Day Spares Kit IAW SOW para 3.4.1	18	EA	--------	--------
0054	One Year Spares Kit IAW SOW para 3.4.2	12	EA	--------	--------
0055	Factory Spares Kit IAW SOW para 3.4.3	6	EA	--------	--------
0056	Commercial Manual supplemental data IAW SOW para. 3.6.2	60	EA	------	--------
0057	Organizational Maintenance Training SOW para. 3.7.3	60	EA	--------	--------
0058	Maintenance Training CD IAW SOW para 3.7.3.1	0	EA	--------	--------
0059	Organizational Operator Training IAW SOW para 3.7.4	60	EA	--------	--------
0060	Operator Training CD IAW SOW para 3.7.4.1	0	EA	--------	--------
0061	Factory Operator/Maintenance Training IAW SOW para. 3.7.5	4	EA	--------	--------
0062	High Performance Modem & Related	60	EA	--------	--------

	Interface Equipment Hook-up Support IAW SOW para. 3.8.1				
0063	Saturn-Bm Terminal/Antenna hand-over Non-Manufactures Warranty IAW Section H	10	EA	--------	--------

The contractor shall provide the following on a **Time & Materials** basis:

0064 LABOR: in accordance with SOW 3.10, REGULAR TIME:

Program Manager	40	M/H	--------	--------
Electronic Engineer	80	M/H	--------	--------
Electronic Technician	480	M/H	--------	--------
Design Engineer	40	M/H	--------	--------
Electronic Test Technician	80	M/H	--------	--------
Quality Assurance	40	M/H	--------	--------
Material Purchase Manager	20	M/H	--------	--------
Packing Specialist	40	M/H	--------	--------
Administrative Support	120	M/H	--------	--------
Draftsman	40	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0064 $_____

0065 LABOR: in accordance with SOW 3.10, OVERTIME:

Program Manager	10	M/H	--------	--------
Electronic Engineer	20	M/H	--------	--------
Electronic Technician	80	M/H	--------	--------
Design Engineer	10	M/H	--------	--------
Electronic Test Technician	20	M/H	--------	--------
Quality Assurance	10	M/H	--------	--------
Material Purchase Manager	04	M/H	--------	--------
Packing Specialist	04	M/H	--------	--------
Administrative Support	02	M/H	--------	--------
Draftsman	04	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0065 $_____

0066	Pre-planned Product Improvement IAW SOW 3.10.4	30	***UNPRICED***	
0067	Materials		01 LOT	$20,000.00
0068	Travel/Per Diem/Handling		01 LOT	$60,000.00

0069	DATA FOR ITEM(S) IAW Contract Data Requirements List, (CDRL), Exhibit(s) "A"	1 LOT	NSP	NSP

TOTAL AMOUNT OPTION II $_____

OPTION III

CLIN	DESCRIPTION	MAXQTY	UNIT	UNIT PRICE	TOTAL AMT
0070	High Performance Modem & IAW SOW Related Interface Equipment	60	EA	_____	_____
0071	Equipment (operator/technical) Manual SOW para. 3.6.1	60	EA	NSP	NSP
0072	Standard Equipment Warranty 24 months after Govt. Accept.	60	EA	NSP	NSP
0073	12 month extension on the standard equipment warranty	20	EA	_____	_____
0074	High Performance Modem	10	EA	--------	--------
0075	Related Interface Equipment	10	EA	--------	--------
0076	90 Day Spares Kit IAW SOW para 3.4.1	18	EA	--------	--------
0077	One Year Spares Kit IAW SOW para 3.4.2	12	EA	--------	--------
0078	Factory Spares Kit IAW SOW para 3.4.3	6	EA	--------	--------
0079	Commercial Manual supplemental data IAW SOW para. 3.6.2	60	EA	------	--------
0080	Organizational Maintenance Training SOW para. 3.7.3	60	EA	--------	--------
0081	Maintenance Training CD IAW SOW para 3.7.3.1	0	EA	--------	--------
0082	Organizational Operator Training IAW SOW para 3.7.4	60	EA	--------	--------

0083	Operator Training CD IAW SOW para 3.7.4.1	0	EA	--------	--------
0084	Factory Operator/Maintenance Training IAW SOW para. 3.7.5	4	EA	--------	--------
0085	High Performance Modem & Related Interface Equipment Hook-up Support IAW SOW para. 3.8.1	60	EA	--------	--------
0086	Saturn-Bm Terminal/Antenna hand-over Non-Manufactures Warranty IAW Section H	10	EA	--------	--------

The contractor shall provide the following on a **Time & Materials** basis:

0087 LABOR: in accordance with SOW 3.10, REGULAR TIME:

Program Manager	40	M/H	--------	--------
Electronic Engineer	80	M/H	--------	--------
Electronic Technician	480	M/H	--------	--------
Design Engineer	40	M/H	--------	--------
Electronic Test Technician	80	M/H	--------	--------
Quality Assurance	40	M/H	--------	--------
Material Purchase Manager	20	M/H	--------	--------
Packing Specialist	40	M/H	--------	--------
Administrative Support	120	M/H	--------	--------
Draftsman	40	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0087 $_____

0088 LABOR: in accordance with SOW 3.10, OVERTIME:

Program Manager	10	M/H	--------	--------
Electronic Engineer	20	M/H	--------	--------
Electronic Technician	80	M/H	--------	--------
Design Engineer	10	M/H	--------	--------
Electronic Test Technician	20	M/H	--------	--------
Quality Assurance	10	M/H	--------	--------
Material Purchase Manager	04	M/H	--------	--------
Packing Specialist	04	M/H	--------	--------
Administrative Support	02	M/H	--------	--------
Draftsman	04	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0088 $_____

0089	Pre-planned Product Improvement IAW SOW 3.10.4	30	***UNPRICED***

0090	Materials	01 LOT	$20,000.00
0091	Travel/Per Diem/Handling	01 LOT	$60,000.00
0092	DATA FOR ITEM(S) IAW Contract Data Requirements List, (CDRL), Exhibit(s) "A"	1 LOT NSP	NSP

TOTAL AMOUNT OPTION III $_____

OPTION IV

CLIN	DESCRIPTION	MAXQTY	UNIT	UNIT PRICE	TOTAL AMT
0093	High Performance Modem & IAW SOW Related Interface Equipment	60	EA	_____	_____
0094	Equipment (operator/technical) Manual SOW para. 3.6.1	60	EA	NSP	NSP
0095	Standard Equipment Warranty 24 months after Govt. Accept.	60	EA	NSP	NSP
0096	12 month extension on the standard equipment warranty	20	EA	_____	_____
0097	High Performance Modem	10	EA	--------	--------
0098	Related Interface Equipment	10	EA	--------	--------
0099	90 Day Spares Kit IAW SOW para 3.4.1	18	EA	--------	--------
0100	One Year Spares Kit IAW SOW para 3.4.2	12	EA	--------	--------
0101	Factory Spares Kit IAW SOW para 3.4.3	6	EA	--------	--------
0102	Commercial Manual supplemental data IAW SOW para. 3.6.2	60	EA	------	--------
0103	Organizational Maintenance Training	60	EA	--------	--------

	SOW para. 3.7.3				
0104	Maintenance Training CD IAW SOW para 3.7.3.1	0	EA	--------	--------
0105	Organizational Operator Training IAW SOW para 3.7.4	60	EA	--------	--------
0106	Operator Training CD IAW SOW para 3.7.4.1	0	EA	--------	--------
0107	Factory Operator/Maintenance Training IAW SOW para. 3.7.5	4	EA	--------	--------
0108	High Performance Modem & Related Interface Equipment Hook-up Support IAW SOW para. 3.8.1	60	EA	--------	--------
0109	Saturn-Bm Terminal/Antenna hand-over Non-Manufactures Warranty IAW Section H	10	EA	--------	--------

The contractor shall provide the following on a **Time & Materials** basis:

0110 LABOR: in accordance with SOW 3.10, REGULAR TIME:

Program Manager	40	M/H	--------	--------
Electronic Engineer	80	M/H	--------	--------
Electronic Technician	480	M/H	--------	--------
Design Engineer	40	M/H	--------	--------
Electronic Test Technician	80	M/H	--------	--------
Quality Assurance	40	M/H	--------	--------
Material Purchase Manager	20	M/H	--------	--------
Packing Specialist	40	M/H	--------	--------
Administrative Support	120	M/H	--------	--------
Draftsman	40	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0110 $_____

0111 LABOR: in accordance with SOW 3.10, OVERTIME:

Program Manager	10	M/H	--------	--------
Electronic Engineer	20	M/H	--------	--------
Electronic Technician	80	M/H	--------	--------
Design Engineer	10	M/H	--------	--------
Electronic Test Technician	20	M/H	--------	--------
Quality Assurance	10	M/H	--------	--------
Material Purchase Manager	04	M/H	--------	--------
Packing Specialist	04	M/H	--------	--------
Administrative Support	02	M/H	--------	--------

	Draftsman	04	M/H	--------	--------

TOTAL AMOUNT FOR CLIN 0111 $_____

0112	Pre-planned Product Improvement IAW SOW 3.10.4	30		***UNPRICED***
0113	Materials		01 LOT	$20,000.00
0114	Travel/Per Diem/Handling		01 LOT	$60,000.00
0115	DATA FOR ITEM(S) IAW Contract Data Requirements List, (CDRL), Exhibit(s) "A"	1 LOT NSP		NSP

TOTAL AMOUNT OPTION IV $_____

Attachment 4
TECHNICAL EVALUATION DEMONSTRATION

1.0 SCOPE

The Contract Award Technical Demonstration Evaluation Plan (CATDEP) provides instructions to TEB members for evaluating Offeror's High Performance Modem and related interface equipment demonstration. In addition, requirements are provided for hardware configurations, test configurations, and evaluated criteria.

2.0 GENERAL REQUIREMENTS

The test configurations depicted in figures 1 through 3 of the CATDEP are required to validate system performance. Demostrations shall be performed at the Offeror's facility. The Offerors shall provide all equipment required for the demonstration including the High performance modems and related interface equipment required at the INMARSAT Land Earth Station to support connectivity. Exceptions are listed in the required material list in Table 1. Satellite lease channel space segment shall be provided by the government. A government designated Land Earth Station will be used to support government performance monitoring requirements. This support shall consist of monitoring and reporting system power levels, looping back government provided space segment leases, and reporting Bit Error Test set readings as required by the government. For verification of required performance parameters, a government representative shall be stationed at the Land Earth Station for the duration of the required testing.

2.1 High Performance Modem & related interface equipment testing shall be conducted with the Nera Saturn-Bm System (MK-II antenna variant). Specific tests will require the integrated Nera antenna handover unit.

2.2 As specified in this instruction, the Offerors shall be ready to perform the required tests on the day and time that was previously arranged through the contracting officer. The offeror shall have their Saturn-Bm terminals, High Performance Modems & related interface equipment, antenna handover unit, test jigs, Spectrum Analyzers, Bit Error Rate Testers (BERT), and required Land Earth Station connectivity in place or readily available for setup within 30 minutes of the Governments arrival at the Offerors designated test facility.

2.3 In the unforeseen event of hardware failure during a required test event, the Government shall allow the vendor up to 24 hours to repair the system and proceed with the required test event. If the faulty unit cannot be repaired within 24 hours, the government reserves the right to reschedule the test event.

2.4 Enclosure (1) of this attachment provides the government's minimum technical requirements for equipment performance in the Technical Review Tables. TEB members shall annotate any clarifications and comments to the test observations in enclosure (2). Each entry shall be initialed and dated.

2.5 If any of the required test results fail to meet the minimum government requirements (receive a unsatisfactory rating) then the Offeror shall be disqualified.

3.0 TEST PROCEDURES

The demonstration shall be conducted in three phases. Phase one shall consist of validating Saturn-Bm system interoperability with the High Performance Modem and related interface equipment. Phase two shall verify system performance when providing enhanced 128kbps and 64kbps services. Phase three shall consist of validating system interoperability between a Saturn-Bm system configured for antenna handover operation and the High Performance Modem and related interface equipment.

3.1 Saturn-Bm Terminal Interoperability Requirements

3.1.1 Phase one configuration shall consist of the Saturn-Bm terminal test setup (figure 1. Diagram) with the High Performance Modem & related interface equipment installed and operational. The offeror shall demonstrate that the minimum required handsets functions listed in the phase I system interoperability table are available during a 128kbps connection and idle condition.

a. The government representatives shall verify that the test configuration, required equipment, and specified cable lengths, are in accordance with the prescribed requirements. The lead government

Representative shall then sign and date the appropriate block in the phase I system interoperability table of enclosure (1).

b. The government representatives shall validate that the BERT is in synch and data is flowing. Once the data link is verified, the government representatives shall verify operation of all applicable handset functions listed in the phase I system interoperability table of enclosure (1). The lead government Representative shall annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each functional verification test is complete.

c. The government representatives shall first verify that the Saturn-Bm terminal is configured and active in the external modem mode, and that the High Performance modem and related interface are activate with no data connection established (idle mode). The government representatives shall then verify operation of all applicable handset functions listed in the phase I system interoperability table of enclosure (1). The lead government Representative shall annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each functional verification test is complete

3.2 System Performance Requirements

3.2.1 Phase two configuration shall consist of three Saturn-Bm terminals with High Performance Modems & related interface equipment. Each system test configuration setup shall adhere to the figure 1 diagram. Initial baseline testing shall consist of validating standard 64kbps lease service in the presence of adjacent satellite channels providing 128kbps enhanced service. The satellite spectrum shall be allocated so that the standard 64kbps channel is operating between adjacent 128kbps channels. One of the three Saturn-Bm terminals shall be initially configured for standard 64Kbps lease service (no external modem). The two other systems shall be configured to support 128Kbps enhanced service. Three adjacent 100KHz channels shall be provided for all required testing. The 2047 pattern on each BERT shall be selected for all testing. In order to establish a baseline for the required power levels, data connectivity shall be first established for standard 64kbps lease service. The Land Earth Station shall be contacted to verify that the standard 64kbps lease service is operating at required power levels. Signal level amplitude shall be visually approximated on a spectrum analyzer. The peak signal level of the standard 64kbps lease service shall be used as a means of verifying 128kbps enhanced service power levels. Once data connectivity is established on all three systems, the BERT on the center channel (64Kbps standard service) shall be monitored periodically for system performance. At various intervals, bit error loss and average bit error rate shall be noted. Test duration shall be 24-hours. During the initial test, relative signal peak amplitude levels on the three adjacent channels shall be compared for equivalence to ensure each required service is operating at the required power level (21.9dBW in the forward direction). Signal level amplitudes shall be visually approximated on a spectrum analyzer. For the next test evolution, each system shall be configured to support 128kbps connectivity. Once data connectivity is established on all three systems, the BERT on the center channel (128kbps enhanced service) shall be monitored periodically for system performance. At various intervals, bit error loss and average bit error rate shall be noted. Test duration of shall be 24-hours. During the test, the Land Earth Station shall be contacted to verify that the enhanced 128kbps service is operating at the required power levels. Relative signal peak amplitude levels on the three adjacent channels shall be compared for equivalence to ensure that the required service is operating at a power level that is consistent with the previous test. Verification of power levels shall be done with the assistance of the Land Earth Station Operator (LESO) that is supporting each test evolution.

a. The government representatives shall verify that the test configuration, required equipment, and specified cable lengths, are in accordance with the prescribed requirements. The lead government Representative shall then sign and date the appropriate block in the phase II system performance table in enclosure (1).

b. Using one system configured to support standard 64kbps connectivity, the offeror shall established a single data session. After the BERT is verified in synch with data following, the LESO shall be contacted to confirm that the standard 64kbs lease service is operating at the required power levels. With one system configured to support 64kbps standard service and the other two systems configured to support 128kbps connectivity, the offeror shall establish three simultaneous data sessions. After all three BERT's

are visually verified to be in sync with data flowing, and the LESO has been contacted and has provided verbal verification that terminal transmit power and shore station transmit power are within specification, the lead government representatives shall record the test start time and the sign and date the appropriate block in enclosure (1). The duration of the test is 24-hours.

c. During the 24-hour link quality test, the offeror shall have a spectrum analyzer set-up to display the three adjacent 100KHz channels. The analyzer shall be connected to the directional coupler as depicted in figure 1. Spectrum analyzer should be set-up to display a 500KHz span that encompasses the three adjacent 100KHz channels. The government representatives shall visually verify that three adjacent channels are present in 300KHz of contiguous bandwidth. The government representatives shall also visually verify that the relative signal peak amplitudes are approximately the same for each carrier. Approximately shall be defined as within 1dB with the spectrum analyzer amplitude scale setting of 2dB/DIV (logarithmic scale). In addition, the government representatives shall visually verify that the 128kbps channel when measured at the 3db point resides within 100KHz. For 100KHz visual verification, the spectrum analyzer shall be set-up to display a 200KHz span that encompasses the center channel with an amplitude scale setting of 2dB/DIV (logarithmic scale). The lead government Representative shall then annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each visual verification test is complete. The lead government Representative shall then sign and date the appropriate block in enclosure.

d. After conclusion of the 24-hour link quality test, the government representatives shall visually verify that the measured average bit error rate is 10^{-6} or less as displayed on the BERT connected to the system operating on the center channel at the offeror's facility. For the BERT supporting data connectivity on the center channel at the LESO's facility, the government shall contact the appropriate LESO personnel to verify that the measured average bit error rate is 10^{-6} or less. The lead government Representative shall then annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each visual verification test is complete. The lead government Representative shall then sign and date the appropriate block in enclosure (1).

e. With each system configured to support 128kbps connectivity, offeror shall establish three simultaneous 128kbps data sessions. After all three BERT's are visually verified to be in sync with data flowing, and the LESO has been contacted and has provided verbal verification that terminal transmit power and shore station transmit power are within specification, the lead government representatives shall record the test start time and the sign and date the appropriate block in enclosure (1). The duration of the test is 24-hour.

f. During the 24-hour link quality test, the offeror shall have a spectrum analyzer set-up to display the three adjacent 100KHz channels. The analyzer shall be connected to the directional coupler as depicted in Figure 1. Spectrum analyzer should be set-up to display a 500KHz span that encompasses the three adjacent 100KHz channels. The government representatives shall visually verify that three adjacent channels are present in 300KHz of contiguous bandwidth. The government representatives shall also visually verify that the relative signal peak amplitudes for this link quality test approximately the same for each carrier. Approximately shall be defined as within 1dB with the spectrum analyzer amplitude scale setting of 2dB/DIV (logarithmic scale). In addition, the government representatives shall visually verify that the 128Kbps channel when measured at the 3db point, resides within 100KHz. For 100KHz visual verification, the spectrum analyzer shall be set-up to display a 200KHz span that encompasses the center channel with an amplitude scale setting of 2dB/DIV (logarithmic scale). The lead government Representative shall then annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each visual verification test is complete. The lead government Representative shall then sign and date the appropriate block in enclosure.

g. After the conclusion of the 24-hour link quality test, the government representatives shall visually verify that the measured bit error rate is 10^{-6} or less as displayed on the BERT connected to the system operating on the center channel at the offeror's facility. For the BERT supporting data connectivity on the center channel at the LESO's facility, the government shall contact the appropriate LESO personnel to verify that the measured average bit error rate is 10^{-6} or less. The lead government Representative shall then

annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each visual verification test is complete. The lead government Representative shall then sign and date the appropriate block in enclosure (1).

3.2.2 To validate the 64kbps enhanced service, the offeror shall use the same phase two configuration as was used to demonstrate the 128kbps enhanced service. The configuration shall consist of three Saturn-Bm terminals with High Performance Modems & related interface equipment. Each system test setup shall adhere to Figure 1. Two systems shall be configured for 64kbps enhanced service. The third system shall be configured for 128kbps connectivity. For the enhanced 64kbps service, relative signal amplitudes shall be compared for equivalence to ensure each required service is operating at the required power level (18.9 dBW in the forward direction for the enhanced 64kbps service and 21.9 dBW in the forward direction for the 128Kbps enhanced service). Signal level amplitudes shall be visually approximated on a spectrum analyzer. During the test, the Land Earth Station shall be contacted to verify that the enhanced 64kbps service and enhanced 128kbps service are operating at the required power levels. Two adjacent 100KHz channels shall be provided for testing. One of the 100KHz channels shall support two 64kbps enhanced lease channel operating in 50KHz each. Once data connectivity is established on all three systems, two 64kbps enhanced leases and one 128kbps enhanced lease, the BERT operating on the 50KHz channel (enhanced 64kbps lease service) that is segmented between the other 50KHz channel and 100KHz channel shall be monitored periodically for system performance.

a. With two systems configured to support enhanced 64kbps service and one system configured to support 128kbps connectivity, offeror shall establish three simultaneous data sessions, two 64kbps and one 128kbps. After each of the BERT's are visually verified to be in sync with data flowing, and the LESO has been contacted and has provided verbal verification that terminal transmit power and shore station transmit power are within specification for enhanced 64kbps and enhanced 128kbps service, the lead government representatives shall record the test start time and the sign and date the appropriate block in enclosure (1). The duration of the test is 24-hours.

b. During the 24-hour link quality test, the offeror shall have a spectrum analyzer set-up to display the two adjacent 100KHz channels. The analyzer shall be connected to the directional coupler as depicted in figure 1. Spectrum analyzer should be set-up to display a 500KHz span that encompasses the two adjacent 100KHz channels. The government representatives shall visually verify that three adjacent carriers, two 64Kbps and one 128Kbps, are present in 200KHz of contiguous bandwidth. The government representatives shall also visually verify that the relative signal peak amplitudes for this link quality test are approximately the same for each carrier. In addition, the government representatives shall visually verify that the 64kbps carrier, when measured at the 3db point resides within 50KHz. For 50KHz visual verification, the spectrum analyzer shall be set-up to display a 100KHz span that encompasses the center channel with an amplitude scale setting of 2dB/DIV (logarithmic scale). The lead government Representative shall then annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each visual verification test is complete. The lead government Representative shall then sign and date the appropriate block in enclosure (1).

c. After the conclusion of the 24-hour link quality test, the government representatives shall visually verify that the measured bit error rate is 10^{-6} or less as displayed on the BERT connected to the system operating on the center channel at the offerors facility. For the BERT supporting data connectivity on the center channel at the LESO's facility, the government shall contact the appropriate LESO personnel to verify that the measured average bit error rate is 10^{-6} or less. The lead government Representative shall then annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each visual verification test is complete. The lead government Representative shall then sign and date the appropriate block in enclosure (1).

3.3 Antenna Hand-over Interoperability Requirements

3.3.1 Phase three configuration shall consist of the Saturn-Bm terminals and antenna handover test setup (Figure 2 diagram) with the High Performance Modem and related interface equipment installed and operational. Please note that the Government is not requiring the offeror to install the SLIP ring modification on either of the Saturn-Bm MK-II antennas that are required for antenna hand-over testing. The demonstration can

be accomplished in lieu of the SLIP ring modification. If requested by prospective offerors, the Government shall make available DAS unit(s) on temporary loan. One DAS unit shall be provided per offeror under the following conditions: 1) The prospective offeror shall be required to provide two of the three INMARSAT Serial Numbers (ISNs) from the contractor furnished Saturn-Bm terminals required to support the demonstration. The ISN shall be used to acquire the corresponding opening key code to support the DAS unit. 2) After the receipt of hardware and corresponding firmware keycode, the offeror shall be required to notify the government within 3-days of any problems with the DAS unit. If problems are uncovered, the government reserves the right to provide the offeror a replacement unit. If no problems are reported the Contractor excepts all responsibility for operating and supporting the DAS during the required demonstration. The offeror shall demonstrate that the minimum required handsets functions are available during stand-alone mode when both systems are configured to operate independently, and when the antenna handover unit is active and both systems are configured for antenna handover operation. Additionally, the offeror shall demonstrate that the proposed equipment is capable of operating during an antenna hand-over evolution. Using the test configuration setup in Figure 3, a synchro-transmitter/receiver shall be used to simulate a shipboard gyro providing Own Ships Heading, 60 Hz information. The Government furnished synchro tester shall be provided at time of demonstration. Upon completion of the testing, the Government shall retain custody of the synchro tester.

a. The government representatives shall verify that the test configuration, required equipment, and specified cable lengths, are in accordance with the prescribed requirements. The lead government Representative shall then sign and date the appropriate block in the phase III antenna handover interoperability table in enclosure (1).

b. With each Saturn-Bm terminal configured for stand-alone operation and the antenna handover unit set for standalone operation, the offeror shall demonstrate the minimum required hand set functions are available during stand-alone mode on the Saturn-Bm unit designated as the main (unit-A). The government representatives shall validate that BERT is in synch at a data rate of 128kbps. Once the data link is verified, the government representatives shall verify operation of all applicable handset functions listed in the in the phase III antenna handover interoperability of enclosure (1). The lead government Representative shall then annotate the observed results as satisfactory and unsatisfactory and then sign and date the appropriate block in enclosure (1) after each functional verification test is complete.

c. With each Saturn-Bm terminal configured for stand-alone operation and the antenna handover unit set for standalone operation, the offeror shall demonstrate the minimum required hand set functions are available with no data connection established (idle mode) on the Saturn-Bm unit designated as the main (unit-A). The government representatives shall verify operation of all applicable handset functions listed in the in the phase III antenna handover interoperability of enclosure (1). The lead government Representative shall then annotate the observed results as satisfactory and unsatisfactory and then sign and date the appropriate block in enclosure (1) after each functional verification test is complete.

d. With each Saturn-Bm terminal configured for antenna hand-over operation and the antenna handover unit set for hand-over operation, the offeror shall demonstrate the minimum required hand set functions are available prior to commencing an antenna handover evolution on the Saturn-Bm unit designated as the main (unit-A). The government representatives shall validate that BERT is in synch and data link of 128kbps is established. Once the data link is verified, the government representatives shall verify operation of all handset functions listed in the phase III antenna handover interoperability of enclosure (1). The lead government Representative shall then annotate the observed results as satisfactory and unsatisfactory and then sign and date the appropriate block in enclosure (1) after each functional verification test is complete.

e. With each Saturn-Bm terminal configured for antenna hand-over operation and the antenna handover unit set for hand-over operation, the offeror shall demonstrate the minimum required hand set functions are available with no data connection established (idle mode) prior to commencing an antenna handover evolution on the Saturn-Bm unit designated as the main (unit-A). The government representatives shall verify operation of all applicable handset functions listed in the phase III antenna handover interoperability of enclosure (1). The lead government Representative shall then annotate the observed

results as satisfactory and unsatisfactory and then sign and date the appropriate block in enclosure (1) after each functional verification test is complete.

f. The government representatives shall verify that the test configuration, required equipment, and specified cable lengths, are in accordance with the prescribed requirements. The lead government Representative shall then sign and date the appropriate block in the phase III antenna handover interoperability table in enclosure (1)

g. With each Saturn-Bm terminal configured for antenna hand-over operation and the antenna handover unit set for hand-over operation, the offeror shall demonstrate modem interoperability during an antenna hand-over evolution by using a simulated gyro source (Figure 3: Synchro tester connection) to drive the main antenna (Antenna-A) into a preprogrammed block zone causing a handover to the backup antenna (Antenna-B). It is anticipated that during the antenna hand-over evolution, that the BERT will lose N-bits and in an extreme case lose synch. However, the BERT should recover automatically and continue to send and receive data. The government representatives shall first confirm the successfully antenna hand-over evolution by observing the transmit carrier transfer from the spectrum analyzer that is monitoring antenna-A to the spectrum analyzer monitoring antenna-B. Next the government representative shall validate that BERT has successfully recovered and is in synch and data is flowing. The lead government Representative shall then annotate the observed results as satisfactory or unsatisfactory and then sign and date the appropriate block in enclosure (1) after each functional verification test is complete.

MATERIAL LIST

ITEM	QTY	ITEM NAME	PART, TYPE OR MODEL NUMBER	MANUFACTURER NAME/NSN NUMBER	REMARKS
1	3	ANTENNA, Bm ADE MK2	QUFF 911 09-3	NERA TELECOMUNICATIONS	Contractor Furnished SEE FIG 1 & 2
2	3	COUPLER, DIRECTIONAL	3002-20	NARDA	Contractor Furnished SEE FIG 1 & 2
3	2	SPECTRUM ANALYZER	HP8563E OR EQUIV.	HEWLETT PACKARD	Contractor Furnished SEE FIG 1 & 2
4	1	DUAL ANTENNA SWITCH	101438	NERA TELECOMMUNICATIONS	~~Contractor~~ Gov't Furnished * SEE FIG 2
5	500ft Total **	CABLE, FLEXIBLE, COAXIAL, 50 OHMS	RG/214	M17/164-00002	Contractor Furnished SEE FIG 1 & 2
6	12	CONNECTOR, N-SERIES RF	KN-59-176	KINGS, M39012/01-0005	Contractor Furnished SEE FIG 1 & 2
7	2	CABLE, M/M DB9	EDN12H-0005-MM	BLACK BOX	Contractor Furnished SEE FIG 2
8	3	MCU	QUFC 911 901-2	NERA TELECOMMUNICATIONS	Contractor Furnished SEE FIG 1 & 2
9	3	POWER SUPPLY 10-34VDC	QUFC 911 903-2B	NERA TELECOMMUNICATIONS	Contractor Furnished SEE FIG 1 & 2
10	3	HAND SET	QDGS 911 903	NERA TELECOMMUNICATIONS	Contractor Furnished SEE FIG 1 & 2
11	2	CCA, GYRO	QROF2199003	SEATEL	Contractor Furnished SEE FIG 1, 2 & 3
12	2	XFMR, 115 AC TO 15 DC	112561	SEATEL	Contractor Furnished SEE FIG 3
13	3	CONNECTOR, TNC-SERIES RF	KA-51-19	KINGS	Contractor Furnished SEE FIG 1 & 2
14	3	BERT, W/RS-530 OPTION	FIREBERD 6000A	TELECOMMUNICATIONS TECHNIQUES CORPORATION	Contractor Furnished SEE FIG 1 & 2 Interface to be determined by test facility.
15	20ft Total	CABLE, GYRO INTERFACE	LS2SU-3 OR SIMILAR	JCH WIRE &CABLE	Contractor Furnished SEE FIG 3
16	1	SYNCHRO TESTER	1998308	CARBONARA LABS	Gov't furnished SEE FIG 3 ***

* Government shall make available the DAS on temporary loan. After the receipt of hardware, the prospective offeror shall be required to notify the government within 3-days of any problems with the DAS unit. If problems are uncovered, the government reserves the right to provide the prospective offeror a replacement unit. If no problems are reported the Contractor excepts all responsibility for operating and supporting the DAS during the required demonstration.

** See Figures 1 & 2 For Required Cable Lengths

*** Government shall provide the Synchro Tester on temporary loan at time of demonstration.

TABLE 1.

Single System Configuration

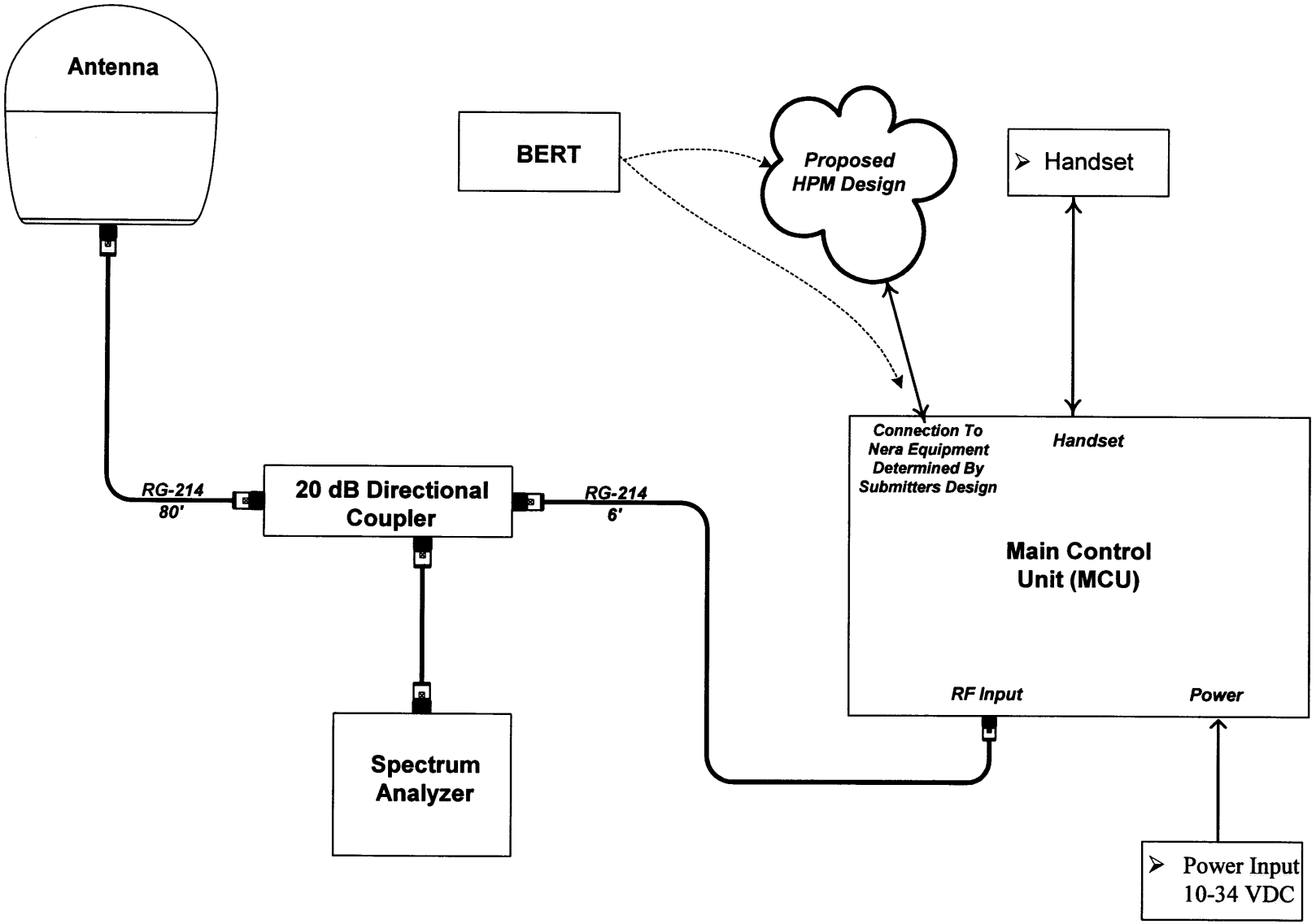

Figure 1.

Dual Antenna Handover System Configuration

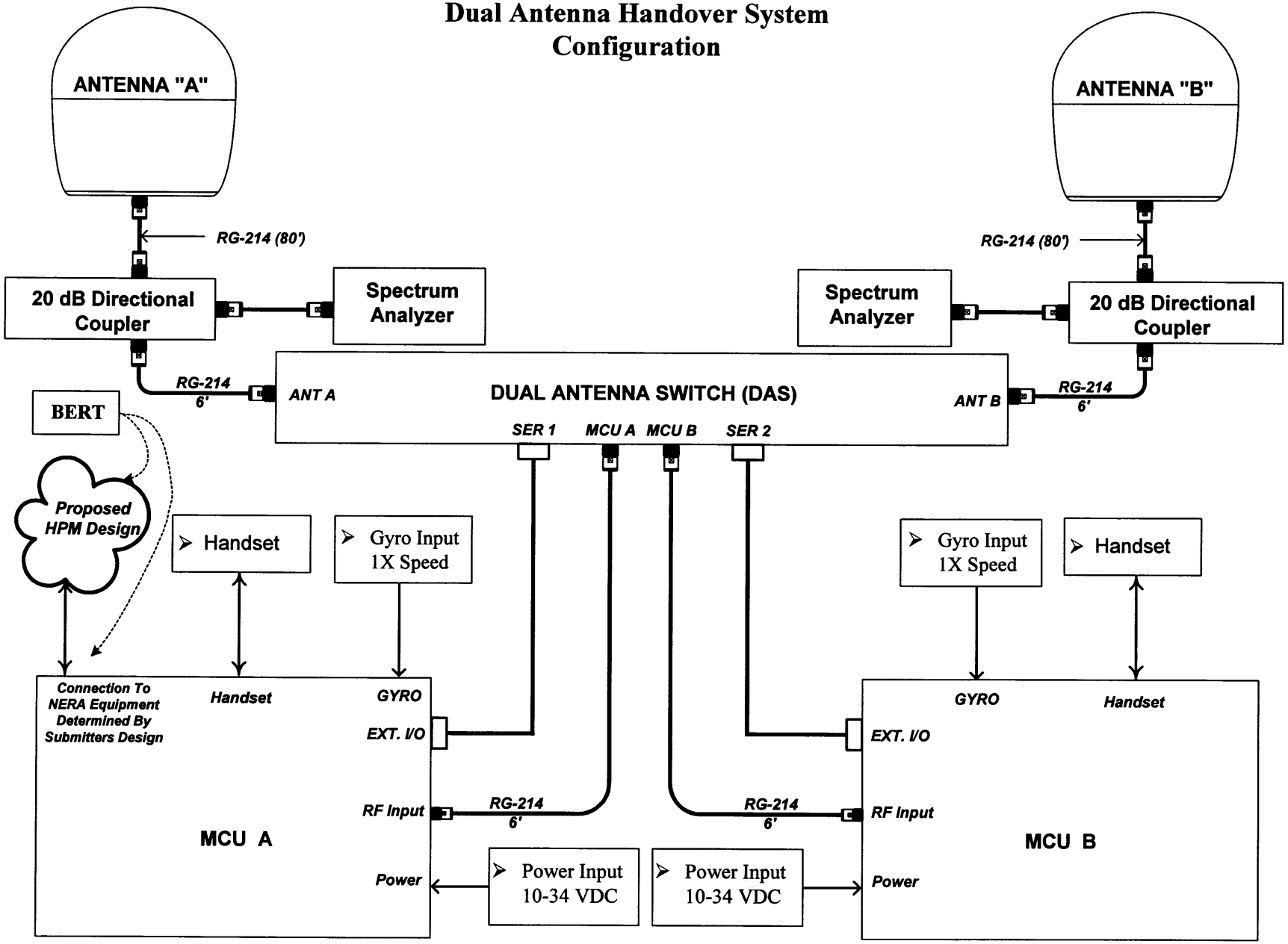

Figure 2.

GYRO Interface Configuration

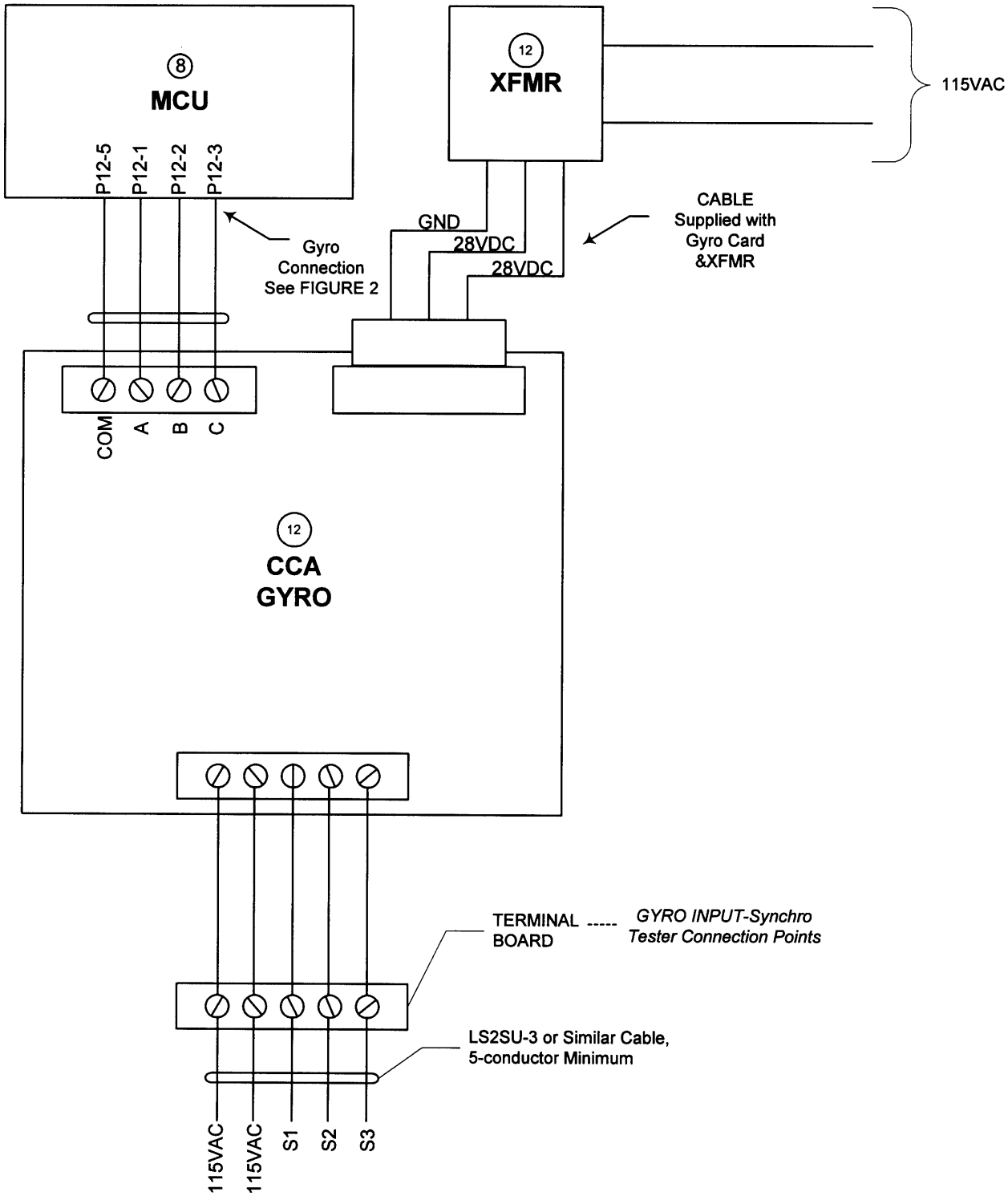

Figure 3.

Enclosure 1

Technical Review Table (Phase I)

Offeror : _____ System Tested: _____

PHASE I System Interoperability Required Saturn-Bm Terminal Functions				
Reference	**Required Function**	**Demonstration Criteria**	**Rating: SAT or UNSTAT**	**Signature/Date**
CATDEP Para 3.1.1.a	**Demonstration Configuration** Provide basis for system interoperability testing	**Equipment Configuration** verify that the test configuration, equipment and specified cable lengths are in accordance with requirements listed in Figure 1 and table 1.		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.15	**Auto Transmit Control** Data path DTR handshaking signal controls call establishment and cessation	**(Hot dial, Function 85)** With the Saturn-Bm terminal configured for Hot Dial (Fuction 85) and the BERT connected to the High Performance Modem, the data control signal (DTR) state shall be changed by toggling the DTR Key on the BERT. 1) Transmit signal should be displayed on the spectrum analyzer. 2) 128Kbps Data flow should be observed on the BERT		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.11	**Emission Control (EMCON)** Provides a means to have positive control of all transmit signal outputs. External EMCON control required for MUTE capable ships.	**MCU EMCON Key Switch** With the spectrum analyzer configured to monitor the transmit signal, the EMCON Key is turned to enable EMCON. 1) The transmit signal should no longer be displayed. 2) The handset should provide a visual indication that transmit is disabled.		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.7	**Terminal Alarms** Provides alarm or important message notification via flashing triangle symbol on the handset	**Handset Display** With the Saturn-Bm terminal configured for printer (function 77) and 128Kbps data connectivity established, the printer power switch shall be turned Off. 1) The terminal handset shall display a flashing triangle symbol. 2) 128kbps data flow shall be verified on the BERT		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.7	**Active Alarms** Provides listing of current active system alarms	**Handset Display, Function 30** Continued from the Terminal alarms validation (printer power OFF and observed flashing triangle). 1) Function 30 shall display the printer alarm		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.7	**Information Log** Provides historical list of system alarms and faults that is used for monitoring the	**Handset Display, Function 31** Continued from Active alarms. 1) Function 31 shall display a list of system alarms and faults.		

	terminals operational status and troubleshooting.			
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.7	**Clear Cause Log** Provides abnormal conditions that have caused the call to be cleared. Information is logged as it occurs. Used for monitoring terminal operation status and troubleshooting.	**Handset Display, Function 32** Continued from Active alarms. 1) Function 32 shall provide a list indicating why previous calls were cleared. If no list is available the government representative shall verify access to function 32 on handset.		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.16	**Signal Level** Provides indication of the receive signal level. Must be viewable when the terminal is in idle mode and busy with a call. Used to verify antenna pointing and receive system readiness.	**Shift+7, Function 27/28** With the High Performance Modem system active and 128 data connectivity established. 1) Pressing the Shift Key followed by the 7 key will display a signal level. 2) Function 27 and 28 shall also display Signal levels along with antenna position		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.12 Para 3.2.1.16	**Current Ocean Region** Provides indication of current satellite selected and is used for changing to a different satellite	**Handset Display, Function 20** With the High Performance Modem system active and 128 data connectivity established. 1) Function 20 shall display current satellite.		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.4 Para 3.2.1.5 Para 3.2.1.6	**Search for Satellite** Provides capability to search for a satellite when the exact pointing angles are unknown	**Handset Display, Function 26** With the High Performance Modem system active and no data call established. 1) Function 26 shall display the search for satellite prompt.		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.4 Para 3.2.1.5 Para 3.2.1.6	**Antenna Absolute Position** Provides capability to view and position the antenna to desired pointing angles, plus provides the current S/N levels.	**Handset Display, Function 27** With the High Performance Modem system active and 128 data connectivity established. 1) Function 27 shall display antenna position and signal level.		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.16	**Read/Set Compass** Indicates the current gyro input heading and provides the capability to correct. This is required for periodic updates to the heading	**Handset Display, Function 29** With the High Performance Modem system active and 128 data connectivity established. 1) Function 29 shall display current heading position.		
CATDEP Para 3.1.1.b Func Spec Para 3.2.1.16	**Display and Key Light** Controls illumination of the display and keys for view under all ambient light conditions	**Handset Display, Shift+9** With the High Performance Modem system active and 128 data connectivity established. 1) Pressing SHIFT key followed by the 9 Key should activate the display light.		

CATDEP Para 3.1.1.c Func Spec Para 3.2.1.16	**Configure Ports** Provides a means to toggle the Saturn-Bm terminal DTE port between data modes to prevent auto dialing when not authorized. Also used when troubleshooting the system	**Handset Display, Function 70** With the High Performance Modem system active and no data call established. 1) Function 70 shall display current data port configuration.		
CATDEP Para 3.1.1.c Func Spec Para 3.2.1.4 Para 3.2.1.5 Para 3.2.1.6 Para 3.2.1.16	**Relative Antenna Position** Provides the capability to manually steer the antenna, plus provides the current S/N levels	**Handset Display, Function 28** With the High Performance Modem system active and no data call established. 1) Function 28 shall display antenna position and signal level. 2) Current antenna azimuth shall be edited to a new value of existing azimuth plus 20° 3) Antenna change in position shall be confirmed by loss of signal.		

Enclosure 1

Technical Review Table (Phase II)

Offeror : _____ System Tested: _____

PHASE II System Interoperability System Performance Requirements				
Reference	**Required Function**	**Demonstration Criteria**	**Rating: SAT or UNSTAT**	**Signature/Date**
CATDEP Para 3.2.1.a.	**Demonstration Configuration** Provide basis for system performance testing	**Equipment Configuration** Verify that the test configuration, equipment and specified cable lengths are in accordance with requirements listed in Figure 1 and table 1.		
CATDEP Para 3.2.1. b. Func Spec Para 3.2.1.3 Para 3.2.1.9 Para 3.2.1.12 INMARSAT SDM	**Standard 64K Lease Service** Legacy service will be required during transition to 128kbps lease service	**64Kbps Performance-legacy** Verify 64Kbps performance in the presence of adjacent channels providing 128Kbps With all three BERT's verified in synch with data connectivity established. 1) LESO confirmation of 64kbps legacy power levels. 2) LESO validation that terminal transmit power and Shore transmit power are in specification for 128kbps service.3) Record ~~1~~24-hour test start time.	1) LESO Verbal Confirmation 2) LESO Verbal Validation 2) Test Start Time. _____	
CATDEP Para 3.2.1.c. Func Spec Para 3.2.1.3 Para 3.2.1.9 Para 3.2.1.12 INMARSAT SDM	**Standard 64K Lease Service** Legacy service will be required during transition to 128kbps lease service	**64Kbps Performance-legacy** Verify 64Kbps performance in the presence of adjacent channels providing 128Kbps With all three BERT's verified in synch with data connectivity established. 1) Visually verify that 3 carriers are present in 300KHz of contiguous bandwidth. 2) Visually verify that the three signal peak amplitudes are approximately equivalent. 3) Visually verify that the 128Kbps carrier resides within 100KHz.		
CATDEP Para 3.2.1 d. Func Spec Para 3.2.1.3 Para 3.2.1.9 Para 3.2.1.12 INMARSAT ~~SDM~~	**Standard 64K Lease Service** Legacy service will be required during transition to 128kbps lease service	**64Kbps Performance-legacy** Verify 64Kbps performance in the presence of adjacent channels providing 128Kbps With all three BERT's verified in synch with data connectivity established. 1) Record Test Stop time 2) Visually verify that the measured bit error rate is 10^{-6} or ~~less as displayed on the BERT~~	1) Test Stop Time. _____ 2) MES BERT	

SDM		less as displayed on the BERT monitoring the center channel. 3) LESO verification of measured bit error rate (10^{-6} or less at shore site).	3) Shore BERT	
CATDEP Para 3.2.1.e. Func Spec Para 3.2.1.3 Para 3.2.1.12 Para 3.2.1.13 ~~INMARSAT SDM~~	**Enhanced 128K Lease Service** High performance Modem and related interface equipment required to support enhanced service.	**128Kbps Performance** Verify 128Kbps performance in the presence of adjacent channels providing 128Kbps With all three BERT's verified in synch with data connectivity established. 1) LESO validation that terminal transmit power and Shore transmit power are in specification. 2) Record ~~1~~24-hour test start time.	1) LESO Verbal Validation 2) Test Start Time. _____	
CATDEP Para 3.2.1.f. Func Spec Para 3.2.1.3 Para 3.2.1.12 Para 3.2.1.13 ~~INMARSAT SDM~~	**Enhanced 128K Lease Service** High performance Modem and related interface equipment required to support enhanced service.	**128Kbps Performance** Verify 128Kbps performance in the presence of adjacent channels providing 128Kbps With all three BERT's verified in synch with data connectivity established. 1) Visually verify that 3 carriers are present in 300KHz of contiguous bandwidth. 2) Visually verify that the three signal peak amplitudes are approximately equivalent. 3) Visually verify that the 128Kbps carrier resides within 100KHz.		
CATDEP Para 3.2.1.g. Func Spec Para 3.2.1.3 Para 3.2.1.12 Para 3.2.1.13 ~~INMARSAT SDM~~	**Enhanced 128K Lease Service** High performance Modem and related interface equipment required to support enhanced service.	**128Kbps Performance** Verify 128Kbps performance in the presence of adjacent channels providing 128Kbps With all three BERT's verified in synch with data connectivity established. 1) Record Test Stop time 2) Visually verify that the measured bit error rate is 10^{-6} or less as displayed on the BERT monitoring the center channel. 3) LESO verification of measured bit error rate (10^{-6} or less at shore site).	1) Test Stop Time. _____ 2) MES BERT 3) Shore BERT	
CATDEP Para 3.2.2.a. Func Spec Para 3.2.1.3 Para 3.2.1.10	**Enhanced 64K Lease Service** High performance Modem and related interface equipment required to support enhanced service.	**64Kbps Performance** Verify 64Kbps performance in the presence of adjacent channels providing 128Kbps and 64Kbps enhanced services. With all three BERT's verified in	1) LESO Verbal Validation	

3.2.1.12 ~~INMARSAT SDM~~		synch with data connectivity established. 1) LESO validation that terminal transmit power and Shore transmit power are in specification. 2) Record ~~1~~24-hour test start time.	2) Test Start Time. _____	
CATDEP Para 3.2.2.b. Func Spec Para 3.2.1.3 Para 3.2.1.10 Para 3.2.1.12 ~~INMARSAT SDM~~	**Enhanced 64K Lease Service** High performance Modem and related interface equipment required to support enhanced service.	**64Kbps Performance** Verify 64Kbps performance in the presence of adjacent channels providing 128Kbps and 64Kbps enhanced services. With all three BERT's verified in synch with data connectivity established. 1) Visually verify that 3 carriers are present in 200KHz of contiguous bandwidth. 2) Visually verify that the three signal peak amplitudes are approximately equivalent. 3) Visually verify that the 64Kbps carrier resides within 50KHz.		
CATDEP Para 3.2.2.c. Func Spec Para 3.2.1.3 Para 3.2.1.10 Para 3.2.1.12 ~~INMARSAT SDM~~	**Enhanced 64K Lease Service** High performance Modem and related interface equipment required to support enhanced service.	**64Kbps Performance** Verify 64Kbps performance in the presence of adjacent channels providing 128Kbps and 64Kbps enhanced services. With all three BERT's verified in synch with data connectivity established. 1) Record Test Stop time 2) Visually verify that the measured bit error rate is 10^{-6} or less as displayed on the BERT monitoring the center channel. 3) LESO verification of measured bit error rate (10^{-6} or less at shore site).	1) Test Stop Time. _____ 2) MES BERT 3) Shore BERT	

Enclosure 1

Offeror : _____ System Tested: _____

PHASE III Antenna Hand-over Interoperability Required Saturn-Bm Terminal Functions				
Reference	**Required Function**	**Demonstration Criteria**	**Rating: SAT or UNSTAT**	**Signature/Date**
CATDEP Para 3.3.1.a.	**Demonstration Configuration** Provide basis for system performance testing	**Equipment Configuration** Verify that the test configuration, equipment and specified cable lengths are in accordance with requirements listed in Figure 2 and table 1.		
	Modem Interoperability with Antenna Hand-over Unit in Stand-Alone Configuration			
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.15	**Auto Transmit Control** Data path DTR handshaking signal controls call establishment and cessation	**(Hot dial, Function 85)** With the Saturn-Bm terminal configured for Hot Dial (Fuction 85) and the BERT connected to the High Performance Modem, the data control signal (DTR) state shall be changed by toggling the DTR Key on the BERT.1) Saturn-Bm terminals and antenna hand-over units are configured for Stand-alone mode 2) Transmit signal should be displayed on the spectrum analyzer. 3) 128Kbps Data flow should be observed on the BERT		
CATDEP Para 3.3.1.b. Func Spec Para 3.2.1.11	**Emission Control (EMCON)** Provides a means to have positive control of all transmit signal outputs. External EMCON control required for MUTE capable ships.	**MCU EMCON Key Switch** With the spectrum analyzer configured to monitor the transmit signal, the EMCON Key is turned to enable EMCON. 1) The transmit signal should no longer be displayed. 2) The handset should provide a visual indication that transmit is disabled.		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.7	**Terminal Alarms** Provides alarm or important message notification via flashing triangle symbol on the handset	**Handset Display** With the Saturn-Bm terminal configured for a printer (function 77), and 128Kbps data connectivity established, the printer power switch shall be turned Off. 1) The terminal handset shall display a flashing triangle symbol. 2) 128kbps data flow shall be verified on the BERT		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.7	**Active Alarms** Provides listing of current active system alarms	**Handset Display, Function 30** Continued from the Terminal alarms validation (printer power OFF and observed flashing triangle). 1) Function 30 shall		

		display the printer alarm		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.7	**Information Log** Provides historical list of system alarms and faults that is used for monitoring the terminals operational status and troubleshooting.	**Handset Display, Function 31** Continued from Active alarms. 1) Function 31 shall display a list of system alarms and faults.		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.7	**Clear Cause Log** Provides abnormal conditions that have caused the call to be cleared. Information is logged as it occurs. Used for monitoring terminal operation status and troubleshooting.	**Handset Display, Function 32** Continued from Active alarms. 1) Function 32 shall provide a list indicating why previous calls were cleared. If no list is available the government representative shall verify access to function 32 on handset.		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.16	**Signal Level** Provides indication of the receive signal level. Must be viewable when the terminal is in idle mode and busy with a call. Used to verify antenna pointing and receive system readiness.	**Shift+7, Function 27/28** With the High Performance Modem system active and 128 data connectivity established. 1) Pressing the Shift Key followed by the 7 key will display a signal level. 2) Function 27 and 28 shall also display Signal levels along with antenna position		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.12 Para 3.2.1.16	**Current Ocean Region** Provides indication of current satellite selected and is used for changing to a different satellite	**Handset Display, Function 20** With the High Performance Modem system active and 128 data connectivity established. 1) Function 20 shall display current satellite.		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.4 Para 3.2.1.5 Para 3.2.1.6	**Search for Satellite** Provides capability to search for a satellite when the exact pointing angles are unknown	**Handset Display, Function 26** With the High Performance Modem system active and no data call established. 1) Function 26 shall display the search for satellite prompt.		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.4 Para 3.2.1.5 Para 3.2.1.6	**Antenna Absolute Position** Provides capability to view and position the antenna to desired pointing angles, plus provides the current S/N levels.	**Handset Display, Function 27** With the High Performance Modem system active and 128 data connectivity established. 1) Function 27 shall display antenna position and signal level.		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.16	**Read/Set Compass** Indicates the current gyro input heading and provides the capability to correct. This is required for periodic updates to the heading	**Handset Display, Function 29** With the High Performance Modem system active and 128 data connectivity established. 1) Function 29 shall display current heading position.		
CATDEP Para 3.3.1.b Func Spec Para 3.2.1.16	**Display and Key Light** Controls illumination of the display and keys for view under all ambient light conditions	**Handset Display, Shift+9** With the High Performance Modem system active and 128 data connectivity established. 1) Pressing SHIFT key followed by		

		the 9 Key should activate the display light.		
CATDEP Para 3.3.1.c Func Spec Para 3.2.1.16	**Configure Ports** Provides a means to toggle the Saturn-Bm terminal DTE port between data modes to prevent auto dialing when not authorized. Also used when troubleshooting the system	**Handset Display, Function 70** With the High Performance Modem system active and no data call established. 1) Function 70 shall display current data port configuration.		
CATDEP Para 3.3.1.c Func Spec Para 3.2.1.4 Para 3.2.1.5 Para 3.2.1.6 Para 3.2.1.16	**Relative Antenna Position** Provides the capability to manually steer the antenna, plus provides the current S/N levels	**Handset Display, Function 28** With the High Performance Modem system active and no data call established. 1) Function 28 shall display antenna position and signal level. 2) Current antenna azimuth shall be edited to a new value of existing azimuth plus 20° 3) Antenna change in position shall be confirmed by loss of signal.		
	Modem Interoperability with Antenna Hand-over Unit Active			
CATDEP Para 3.3.1.d. Func Spec Para 3.2.1.14 Para 3.2.1.15	**Auto Transmit Control** Data path DTR handshaking signal controls call establishment and cessation	**(Hot dial, Function 85)** With the Saturn-Bm terminal configured for Hot Dial (Fuction 85) and the BERT connected to the High Performance Modem, the data control signal (DTR) state shall be changed by toggling the DTR Key on the BERT.1) Saturn-Bm terminals and antenna hand-over units are configured for **antenna hand-over** mode 2) Transmit signal should be displayed on the spectrum analyzer. 3) 128Kbps Data flow should be observed on the BERT		
CATDEP Para 3.3.1.d. Func Spec Para 3.2.1.11 Para 3.2.1.14	**Emission Control (EMCON)** Provides a means to have positive control of all transmit signal outputs. External EMCON control required for MUTE capable ships.	**MCU EMCON Key Switch** With the spectrum analyzer configured to monitor the transmit signal, the EMCON Key is turned to enable EMCON. 1) The transmit signal should no longer be displayed. 2) The handset should provide a visual indication that transmit is disabled.		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.7	**Terminal Alarms** Provides alarm or important message notification via flashing triangle symbol on the handset	**Handset Display** With the Saturn-Bm terminal configured for a printer (function 77) and 128Kbps data connectivity established, the		

Para 3.2.1.14		printer power switch shall be turned Off. 1) The terminal handset shall display a flashing triangle symbol. 2) 128kbps data flow shall be verified on the BERT		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.7 Para 3.2.1.14	**Active Alarms** Provides listing of current active system alarms	**Handset Display, Function 30** Continued from the Terminal alarms validation (printer power OFF and observed flashing triangle). 1) Function 30 shall display the printer alarm		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.7 Para 3.2.1.14	**Information Log** Provides historical list of system alarms and faults that is used for monitoring the terminals operational status and troubleshooting.	**Handset Display, Function 31** Continued from Active alarms. 1) Function 31 shall display a list of system alarms and faults.		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.7 Para 3.2.1.14	**Clear Cause Log** Provides abnormal conditions that have caused the call to be cleared. Information is logged as it occurs. Used for monitoring terminal operation status and troubleshooting.	**Handset Display, Function 32** Continued from Active alarms. 1) Function 32 shall provide a list indicating why previous calls were cleared. If no list is available the government representative shall verify access to function 32 on handset.		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.14 Para 3.2.1.16	**Signal Level** Provides indication of the receive signal level. Must be viewable when the terminal is in idle mode and busy with a call. Used to verify antenna pointing and receive system readiness.	**Shift+7, Function 27/28** With the High Performance Modem system active and 128 data connectivity established. 1) Pressing the Shift Key followed by the 7 key will display a signal level. 2) Function 27 and 28 shall also display Signal levels along with antenna position		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.12 Para 3.2.1.14 Para 3.2.1.16	**Current Ocean Region** Provides indication of current satellite selected and is used for changing to a different satellite	**Handset Display, Function 20** With the High Performance Modem system active and 128 data connectivity established. 1) Function 20 shall display current satellite.		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.4 Para 3.2.1.5 Para 3.2.1.6 Para 3.2.1.14	**Search for Satellite** Provides capability to search for a satellite when the exact pointing angles are unknown	**Handset Display, Function 26** With the High Performance Modem system active and no data call established. 1) Function 26 shall display the search for satellite prompt.		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.4 Para 3.2.1.5	**Antenna Absolute Position** Provides capability to view and position the antenna to desired pointing angles, plus provides the current S/N levels.	**Handset Display, Function 27** With the High Performance Modem system active and 128 data connectivity established. 1) Function 27 shall display		

Para 3.2.1.6 Para 3.2.1.14		antenna position and signal level.		
CATDEP Para 3.3.1.d Func Spec Para 3.2.1.14 Para 3.2.1.16	**Read/Set Compass** Indicates the current gyro input heading and provides the capability to correct. This is required for periodic updates to the heading	**Handset Display, Function 29** With the High Performance Modem system active and 128 data connectivity established. 1) Function 29 shall display current heading position.		
CATDEP Para 3.3.1.d Tech Spec Para 3.2.1.14 Para 3.2.1.16	**Display and Key Light** Controls illumination of the display and keys for view under all ambient light conditions	**Handset Display, Shift+9** With the High Performance Modem system active and 128 data connectivity established. 1) Pressing SHIFT key followed by the 9 Key should activate the display light.		
CATDEP Para 3.3.1.e Func Spec Para 3.2.1.14 Para 3.2.1.16	**Configure Ports** Provides a means to toggle the Saturn-Bm terminal DTE port between data modes to prevent auto dialing when not authorized. Also used when troubleshooting the system	**Handset Display, Function 70** With the High Performance Modem system active and no data call established. 1) Function 70 shall display current data port configuration.		
CATDEP Para 3.3.1.e Tech Spec Para 3.2.1.4 Para 3.2.1.5 Para 3.2.1.6 Para 3.2.1.14 Para 3.2.1.16	**Relative Antenna Position** Provides the capability to manually steer the antenna, plus provides the current S/N levels	**Handset Display, Function 28** With the High Performance Modem system active and no data call established. 1) Function 28 shall display antenna position and signal level. 2) Current antenna azimuth shall be edited to a new value of existing azimuth plus 20° 3) Antenna change in position shall be confirmed by loss of signal.		
	Modem Interoperability During Antenna Hand-over Evolution			
CATDEP Para 3.3.1.f.	**Demonstration Configuration** Provide basis for system performance testing	**Equipment Configuration** Verify that the test configuration, equipment and specified cable lengths are in accordance with requirements listed in Figure 2, Figure 3 and table 1.		
CATDEP Para 3.3.1.g. Func Spec Para 3.2.1.14 Para 6.3	**Antenna Handover** Provides a means of automatic switching between antennas to maintain a continuous line of sight to the satellite	**128Kbps Interoperability** With spectrum analyzers set to monitor each system during the antenna hand-over evolution and 128kbps data connectivity established. 1) verify the transfer from the primary antenna (A) to the secondary antenna (B) by observing the transmit carrier transfer. 2) Verify that the BERT has recovered and is in synch and receiving and transmitting data.		

N66001-02-R-5999
Amendment 0005 – Questions and Answers

1. Q. Amendment 0002 Question 3The answer to question 3 indicates the Navy only funds Travel costs and associated labor if the warranty is outside the radius of support covered under the current warranty. If the offerer does not have a world wide organization these costs could be significant.Is there any credit/penalty applied in the price evaluation to these costs?

A. No.

2. Q. SOW para 3.7 and 3.8
Travel costs for Installation Support and associated Training could be significant if the offerer does not have services available in the U.S. Navy homeports. Is there any credit/penalty applied in the price evaluation to costs?

A. No.